



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/507,146

04/27/2005

David Long

100750.0001US

8969

34284

7590

12/28/2007

Rutan & Tucker, LLP.

Hani Z. Sayed

611 ANTON BLVD

SUITE 1400

COSTA MESA, CA 92626

EXAMINER

VANOY, TIMOTHY C

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

12/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/507,146	Applicant(s) LONG, DAVID	
	Examiner Timothy C. Vanoy	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 57-35,925 A to Murakami et al.

The English abstract of JP-925 sets forth that the NO_x contained in the exhaust gas emitted from a coal combustion process is reduced by reaction with pulverized coal injected into the exhaust gas. The NO_x is reduced by the hydrocarbons, ammonia and cyanide generated from the pulverized coal. Paragraph section no. 6 on pg. 2 in the text of JP-925 seems to teach that the reaction between the NO_x and the chemical agents occur at a temperature as low as 900 °C (1,652 °F).

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 55-139,819 A to Takeuchi et al.

Paragraph no. 4 on pg. 2 within the text of JP-819 appears to describe a prior art process for removing NO_x out of an exhaust gas via reaction hydrogen cyanide at a temperature below 1,400 °C (2,552 °F).

Claim Rejections - 35 USC § 103

Art Unit: 1793

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

Claims 1-16 rejected under 35 U.S.C. 103(a) as being unpatentable over the English translation of JP 55-139,819 A.

Claim 1 in the English translation of JP-819 discloses a process for removing cyanide and nitrogen oxides from a waste gas by contacting the waste gas with a catalyst at an elevated temperature. Pg. 12, 2nd full paragraph in the English translation of JP-819 sets forth that if the waste gas contains nitrogen oxides alone, then cyanides can be added to the waste gas. Pg. 7, 1st full paragraph in the English translation of JP-819 sets forth that reaction temperatures of 450 °C (842 °F) or lower may be used.

Art Unit: 1793

The difference between the process described in the invention of JP-819 and the Applicants' claims is that the process of JP-819 conducts the denitration at a temperature of 450 °C or less (i. e. 842 °F or less) whereas the Applicants' claims call for conducting the denitration at a temperature of 1,200 to 1,700 °F, *however* it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made *because* pg. 4, 2nd full paragraph in the English translation of JP-819 discloses a similar reaction between nitrogen oxides and cyanide at temperatures of 1,400 °C or below and the courts have already determined that the overlapping portion of a claimed range and a prior art reference's range is *prima facie* obvious: please note the discussion of the *In re Wertheim* 541 F.2d 257, 191 USPQ 90 (CCPA 1976) court decision set forth in section 2144.05(I) in the MPEP.

The difference between the Applicants' claims and JP 55-139,819 A is that the Applicants' claims call for the injection of a waste which contains the cyanide, whereas JP 55-139,819 A seems to allude to the injection of cyanide alone on pg. 12, 2nd full paragraph in the English translation of JP-819, *however* it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made *because* one skilled in the art would have a "reasonable expectation of success" of using any material that contains cyanide, such as the "cyanides" mentioned on pg. 12 in the English translation of JP-819 *or* the cyanide-containing waste of the Applicants' claims: please note the discussion of the *In re Merck & Co. Inc.* 800 F.2d 1091, 231 USPQ 375 (fed. Cir. 1986) court decision set forth in

Art Unit: 1793

section 2143.02(I) in the MPEP. No criticality or unexpected advantages are seen in using a cyanide-containing waste as compared to any other source of cyanide.

Claims 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. 6,210,154 B1 to Evans et al. in view of the English translation of JP 55-139,819 A.

The English abstract of the Evans et al. patent describes a method and apparatus for removing nitrogen oxides emitted from a cement manufacturing plant that comprises a kiln and a Lepol pre-heater, by injecting the NO_x-reducing agent (i. e. waste tires) into the pre-heater.

The difference between the Applicants' claims and this Evans et al. patent is that Applicants' claims call for using a cyanide-containing waste as the NO_x reductant at a temperature ranging from 1,200 to 1,700 °F.

Claim 1 in the English translation of JP-819 discloses a process for removing cyanide and nitrogen oxides from a waste gas by contacting the waste gas with a catalyst at an elevated temperature. Pg. 12, 2nd full paragraph in the English translation of JP-819 sets forth that if the waste gas contains nitrogen oxides alone, then cyanides can be added to the waste gas. Pg. 7, 1st full paragraph in the English translation of JP-819 sets forth that reaction temperatures of 450 °C (842 °F) or lower may be used.

The difference between the process described in the invention of JP-819 and the Applicants' claims is that the process of JP-819 conducts the denitration at a

Art Unit: 1793

temperature of 450 °C or less (i. e. 842 °F or less) whereas the Applicants' claims call for conducting the denitration at a temperature of 1,200 to 1,700 °F, *however* it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made *because* pg. 4, 2nd full paragraph in the English translation of JP-819 discloses a similar reaction between nitrogen oxides and cyanide at temperatures of 1,400 °C or below and the courts have already determined that the overlapping portion of a claimed range and a prior art reference's range is *prima facie* obvious: please note the discussion of the *In re Wertheim* 541 F.2d 257, 191 USPQ 90 (CCPA 1976) court decision set forth in section 2144.05(I) in the MPEP.

The difference between the Applicants' claims and JP 55-139,819 A is that the Applicants' claims call for the injection of a waste which contains the cyanide, whereas JP 55-139,819 A seems to allude to the injection of cyanide alone on pg. 12, 2nd full paragraph in the English translation of JP-819, *however* it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made *because* one skilled in the art would have a "reasonable expectation of success" of using any material that contains cyanide, such as the "cyanides" mentioned on pg. 12 in the English translation of JP-819 *or* the cyanide-containing waste of the Applicants' claims: please note the discussion of the *In re Merck & Co. Inc.* 800 F.2d 1091, 231 USPQ 375 (fed. Cir. 1986) court decision set forth in section 2143.02(I) in the MPEP. No criticality or unexpected advantages are seen in using a cyanide-containing waste as compared to any other source of cyanide.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to have modified* the process and apparatus described in the Evans et al. patent *by substituting* the cyanide-containing waste obvious from JP-819 *in lieu of* the waste tires used in the process and apparatus of the Evans et al. patent into the process and apparatus of the Evans et al. patent, in the manner required by the Applicants' claims, *because* the courts have already determined that such substitution of one known functional equivalent in lieu of another known functional equivalent (both of which are useful for the same purpose) is *prima facie* obvious: please note the discussion of the *In re Fout* 675 F.2d 297, 213 USPQ 532 (CCPA 1982) court decision set forth in section 2144.06(II) in the MPEP.

Double Patenting

- a) Claims 1-19 of this application conflict with claims 1-19 of Application No. 11-949,628. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.
- b) A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis

Art Unit: 1793

added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 17-19 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 17-19 of copending Application No. 11-949,628. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

c) The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 11-949,628. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of 10-507,146 and 11-949,628 describe obvious variations of the same process for reducing nitrogen oxides from an air stream by injecting cyanide into the air stream and allowing the cyanide to react with the nitrogen oxides.

The difference between the claims of 10-507,146 and 11-949,628 is that claim 1 in 10-507,146 set forth that the cyanide is introduced into the air stream at a temperature ranging from 1200 to 1700 °F.

Claim 2 in 11-949,628 sets forth that the reaction step occurs at a temperature between 1200 and 1640 °F.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have set forth that claim 1 in 11-949,628 calls for injecting the cyanide into the air stream at a temperature ranging from 1200 to 1700 °F,

in the manner set forth in claim 1 in 10-507,146, because claim 2 in 11-949,628 fairly teaches this claimed temperature range.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments submitted with the Amendment filed on Nov. 21, 2007 have been fully considered but they are not persuasive.

a) *The Applicant remarks that he has withdrawn claims 1 and 2 in this application.*

The withdrawal of claims 1 and 2 is not the appropriate action to take in responding to the 35USC102 rejections of claims 1 and 2 because no restriction requirement has been made that rendered claims 1 and 2 non-elected. Cancellation of claims 1 and 2 would be the appropriate course of action.

Copies of the English translations of JP 55-139,819 A and JP 57-035,925 A are being supplied with this Office Action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

Art Unit: 1793

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Timothy C Vanoy
Timothy C Vanoy
Primary Examiner
Art Unit 1793

tcv